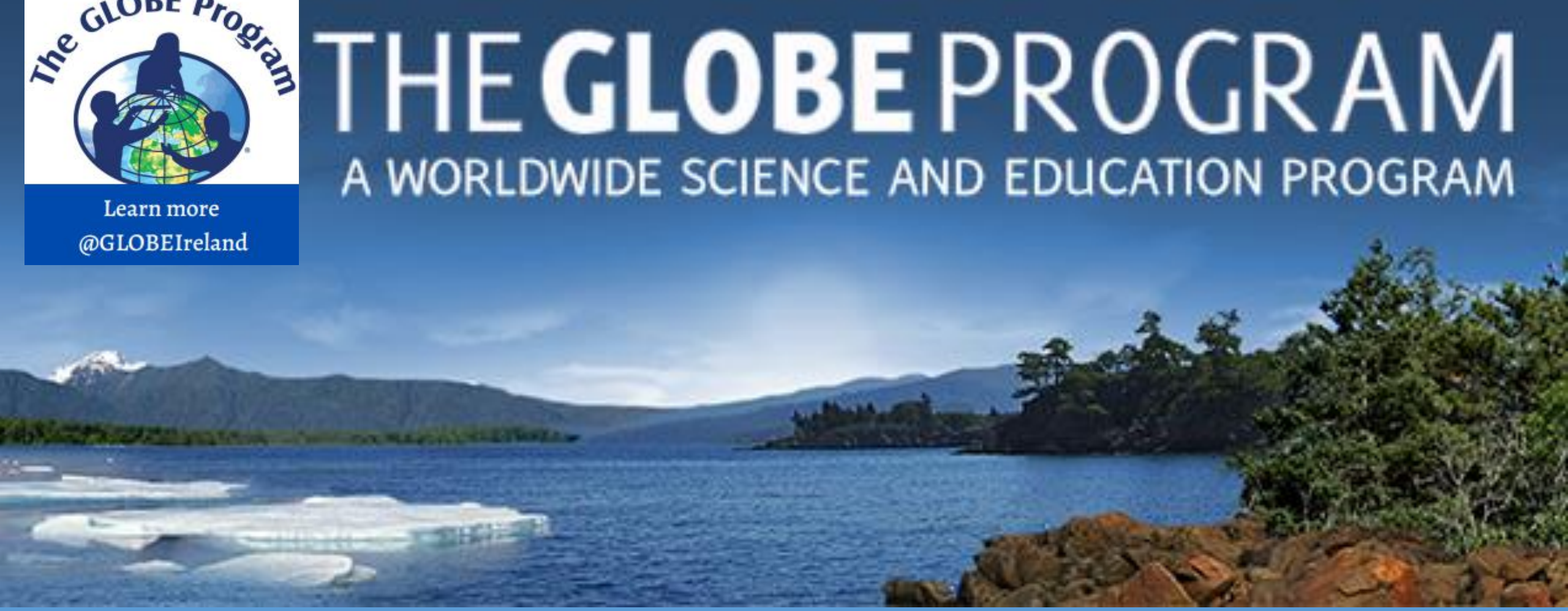
Learn more
@GLOBEIreland



GLOBE 22/23 Project Themes and Workshops

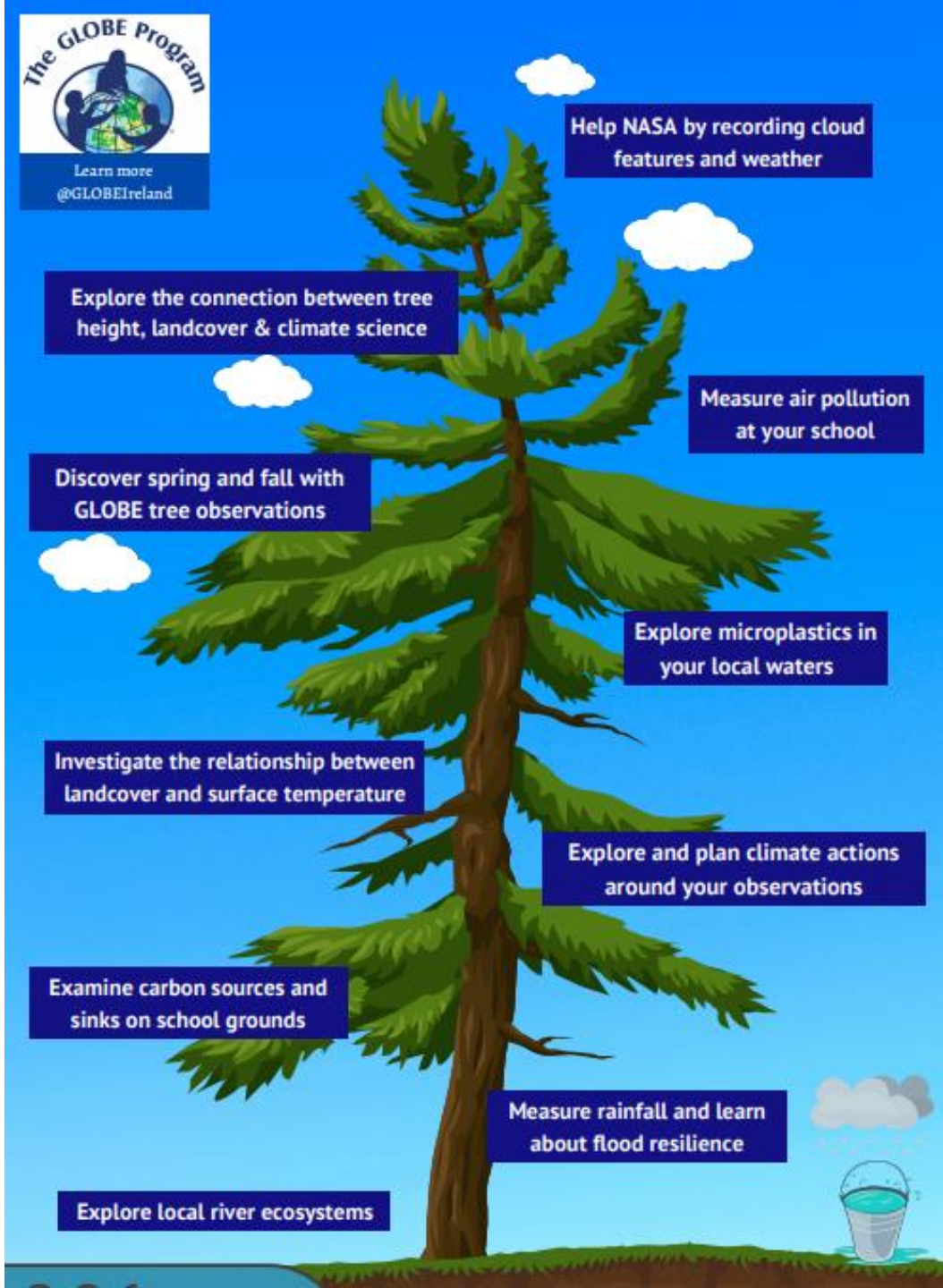
What is the GLOBE Programme?

The GLOBE (Global Learning and Observations to Benefit the Environment) programme *is a NASA supported international* ***science and education programme*** *that offers students the chance to participate in data collection and the scientific process and contribute meaningfully to our understanding of the Earth system and global environment* ***(www.globe.gov).***

The GLOBE Programme in Ireland is sponsored by the EPA and based in An Taisce's Environmental Education Unit. GLOBE supports primary and secondary schools in Ireland who wish to engage with earth and environmental science activities at school. We promote ***citizen-science at schools*** *through* ***action-based activities*** *where students can collect meaningful data that supports our environment.*

If you're interested in taking part, please register here.

The GLOBE team in the EEU has expertise in Education, Earth and Environmental Science, Environmental Policy, Nature-Based Solutions, Science Communication and Outdoor Learning.



What does GLOBE Ireland offer?

- Opportunities for **continued professional development and teacher training**
- Opportunities to **participate in GLOBE Ireland campaigns** and International GLOBE campaigns/measurements
- **Teacher resources**: GLOBE has a wide range of teacher resources available that cover **all Earth spheres – Atmosphere, Biosphere, Pedosphere and Hydrosphere**
- **School-based workshops** (booking available) - 1-2 hr. with a focus on hands-on activities and **solutions-oriented project wor**k related to **climate change**.
- Opportunity for national and **international collaboration** with GLOBE school network
- School project **competitions** and project **sharing events**
- **Data visualization** via the GLOBE data visualisation database

The following presents a short overview of what GLOBE can offer you and your class/group in the 22/23 term. Themes can be made suitable for both primary and secondary students.

Once you have expressed interest, more resources and materials will be made available.

Brief project overview 1:
Measure rainfall and explore flood resilience

1) Students measure rainfall and compare with Met Éireann's local weather station data.
2) Students can graph rainfall over a period in (Nov/Dec./Jan/Feb/March) and calculate the average rainfall at this time and compare it to past rainfall events and projected flood levels.
3) Students explore the connection between urban landforms and flooding (concrete, tarmac, grass, soil types and the role of soil moisture and root systems, coast lines).
4) Students explore what native plants/root systems are good at knitting the soil together and can plan an action to plant some of these species on school grounds.
5) Students compare their findings to those of other schools around the world using the GLOBE Programme.
6) **Suggested actions based on project learnings**: **plant** native species or small woodlands on school grounds to increase soil moisture absorption capacity, build a **rain garden** or bioswale, run an **information campaign** about the role of **dunes** and coastal protection, explore pavement narrowing solutions or the implementation of permeable pavement on school grounds, explore soil sealing

Brief project overview 2: Measure air quality around your school

1) Take part in the GLOBE Ireland Air Quality campaign that measures NO_2 outside at school in October 2022

2) Investigate how weather (rain, heat, wind etc.) influences the air pollution.

3) Students develop a project on their air quality investigation

4) Students research where NO_2 comes from and how to reduce their local air pollution levels.

Actions: Anti-idling campaigns, walk/scoot to school days, explore how trees can improve air quality, improve cyclability and run campaigns to encourage cycling *and much more..*

Brief project overview 3:
Investigate the relationship between landcover, surface temperature and climate change

1) Students take surface temperature measurements and record daily temperature outdoors.

2) Students develop an overview of landcover around the school and categorise them (urban, forested, park, tarmac, garden etc.)

3) Students complete **surface temperature measurements** at different locations, one on tarmac under an umbrella, one in the shade, one under a tree etc., and compare the results.

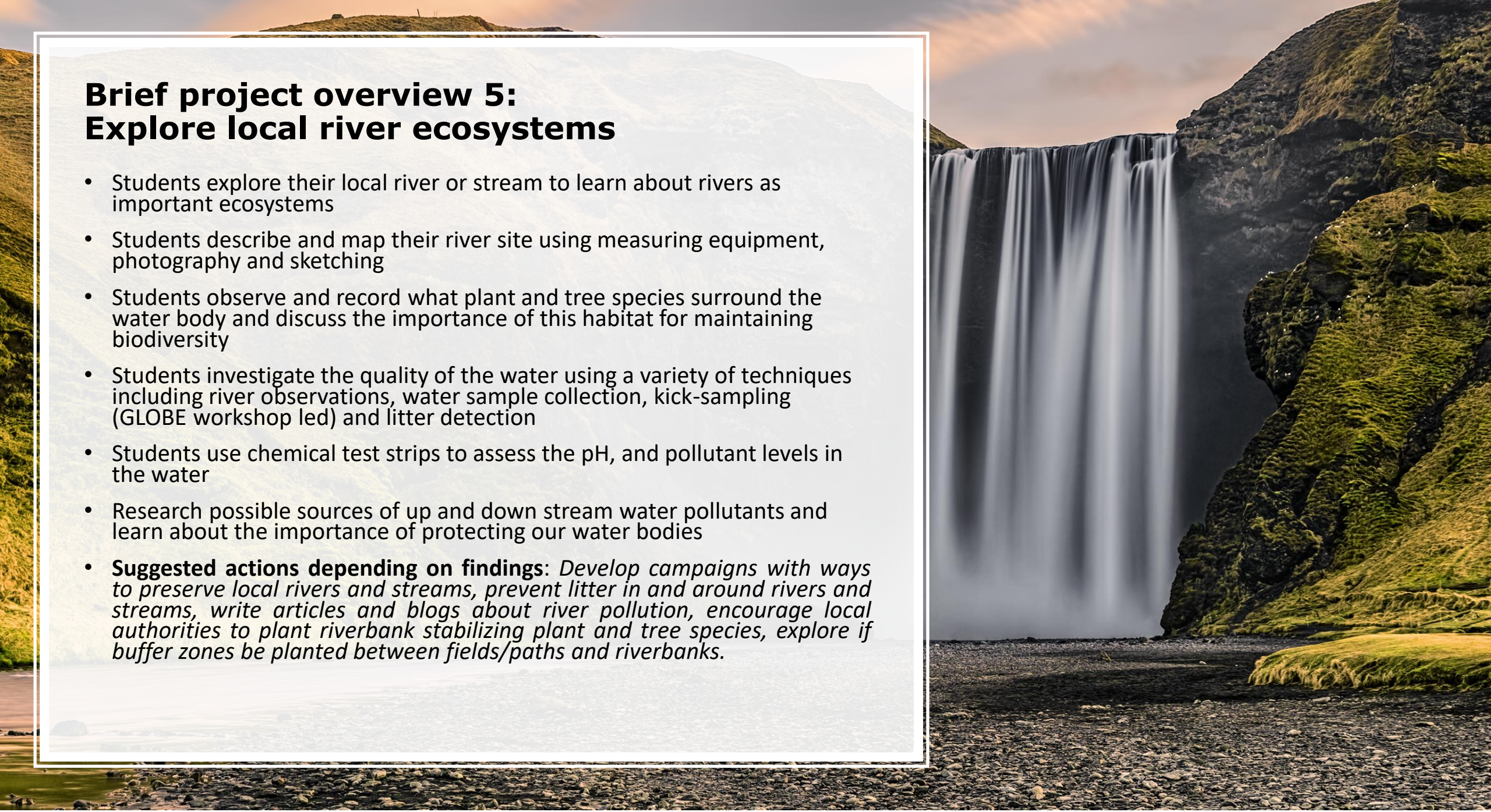
4) Students investigate what the **urban heat island effect** is and what impact it can have in different locations around the world.

5) Teachers and schools have the option to **collaborate with other schools** in different countries who are doing this project across the world to compare their results.

ACTIONS: Students plan actions that may reduce the urban heat island effect e.g., by greening up school grounds, planting rooftop gardens, hedges, wall shrubs, installing a micro pond, and more…

Brief project overview 4:
Examine carbon sources and sinks on school grounds

- Complete a carbon sink and source map of your school grounds or local community.
- Quantify the square meters of bare fence or stone-wall on school grounds or within the local school community and compare with square meter hedgerows and trees.
- Note if trees on school grounds are being lobbed (trimmed) annually, if there are bare areas of grass strips, and note how many mature trees there are on school grounds over the age of 5-10 years.
- Develop a carbon footprint survey of your school and analyse the results.
- Use the GLOBE Tree Height App to measure tree height. Then measure tree circumference and identify the tree species to calculate carbon storage of trees on the school ground.
- **Project action suggestions***: Check if tree lobbing on school grounds can be prevented with grounds management, protect mature trees, plant small woodlands or additional trees on school grounds, check if you can narrow the number of paved areas, can fence and bare wall be supported with wall shrubs or can hedgerow be planted instead?, plan clothes swap-shops, and other activities to lower the school's carbon footprint.*
- **Measure yearly to check if there are any changes based on your activities**



Brief project overview 5: Explore local river ecosystems

- Students explore their local river or stream to learn about rivers as important ecosystems
- Students describe and map their river site using measuring equipment, photography and sketching
- Students observe and record what plant and tree species surround the water body and discuss the importance of this habitat for maintaining biodiversity
- Students investigate the quality of the water using a variety of techniques including river observations, water sample collection, kick-sampling (GLOBE workshop led) and litter detection
- Students use chemical test strips to assess the pH, and pollutant levels in the water
- Research possible sources of up and down stream water pollutants and learn about the importance of protecting our water bodies
- **Suggested actions depending on findings**: *Develop campaigns with ways to preserve local rivers and streams, prevent litter in and around rivers and streams, write articles and blogs about river pollution, encourage local authorities to plant riverbank stabilizing plant and tree species, explore if buffer zones be planted between fields/paths and riverbanks.*

Brief project overview 6:
Explore microplastics in your local waters

- Students learn about plastic and microplastic pollution on a local and global scale
- Visit your local beach, river, lake and observe plastic pollution
- Collect water samples from your local water body
- Using science equipment (typically found in secondary level schools), filter the collected water samples
- Use a microscope to observe material that has been filtered out of the water and identify microplastics
- **Identify actions to reduce exposure to microplastics:** E.g. Avoid eating from plastic containers or heating food in plastic containers, avoid drinking from plastic, campaign for your schools, vacuum regularly to avoid breathing microplastics in through dust, use drinking water filters on taps, purchase clothing with non-synthetic materials, avoid personal care products with microbeads (face-washes, toothpastes, body washes etc.), put a microplastics filter in your washing machine, use lose tea instead of tea bags (tea bags can leave microplastics traces behind).
- **Identify actions to reduce microplastics:** E.g. reduce plastic consumption, organize a clothing swapshop to encourage secondhand clothing consumption, ensure access to plastic recycling bins, ensure the canteen is offering fresh food, put up signs above school microwaves to discourage microwaving food in plastic, avoid using glitter.

Brief project overview 7: Discover spring and fall with GLOBE tree observations

1) Students chose a tree in February or October to observe spring/fall bud-burst or leaf fall.

2) Students record the daily temperature and bud development on the tree to compare and discover how weather and temperature effects bud-burst and leaf formation.

3) Students complete the same activity in the autumn to measure when the leaves fall off the trees.

4) Students can compare their findings with other schools in other parts of the world.

5) Students may also compare to previous years in the GLOBE visualisation tool to track how climate change has impacted the beginning of spring and fall.

6) Students do artwork or writing about their projects and observations.

Brief project overview 8:
Help NASA by recording cloud features and monitoring weather systems

- Students engage in GLOBE Cloud and Atmosphere observation activities to learn about the **water cycle** and **weather systems.**
- Students practice taking measurements that local weather stations record through hands-on activities (e.g. measuring temperature at different locations on school grounds, recording rainfall with a rain gauge, tracking wind direction).
- Students study storms and learn about their impacts and what actions can help reduce the impact of winter storms and flooding.
- Students explore solutions they may be implement at their school (e.g. planting trees/plants, rooftop gardens, rain gardens, bioswale's, etc.)

What next?

- Depending on the level of interest / capacity you may chose to complete **multiple activities** or focus on **one or two.** You will then receive more teaching resources regarding the theme to use in the classroom.
- All projects follow the process of teaching observation, to inquiry, to data collection, to analysis, to **action** in order to increase student ownership and foster leadership competencies that inspire students to be change-agents for their **local** environment.
- Actions can include **artwork, poems, video submissions, songs, plays, story writing, outdoor planting, building rain gardens, and more**!
- You can book one or two workshops that GLOBE Ireland will come and facilitate at the school.
- Students can **submit their projects** to the **GLOBE project competition** and students and schools may win prizes from their participation.
- Students can also use their projects to participate in the BTS Young Scientist Awards, Young Reporters for the Environment, or the Young Environmentalist Awards
- At the end of the school year, students will be invited to **share their project result**s with other schools from across the Island.

Click here to express early interest in the project options that interest you and your students most!

Stay connected and follow:
@GLOBEIreland

Any questions contact:

Maya Fields or Aileen Bright at
globe@eeu.antaisce.org

Call: 0874038765